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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,238	02/25/2002	Masanobu Hidehira	8039-1002	3861
466	7590	06/29/2004	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			DI GRAZIO, JEANNE A	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/081,238	Applicant(s) HIDEHIRA ET AL.	
	Examiner Jeanne A. Di Grazio	Art Unit 2871	<i>AC</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claims*

Claims 1, 3-9, and 11-15 are pending. Claims 2 and 10 have been cancelled. New claims 11-15 have been added.

### *Priority*

Priority to Japanese Patent Application No. 2001-049492 (Feb. 23, 2001) is claimed.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 13, Applicant recites “wherein said black matrix has a wide portion overlapping a region in the pixel between said data line and the projecting portion ...” The Examiner is unable to determine what is meant by “the projecting portion” and to what “the projecting portion” refers. As claim 13 currently reads, the projecting portion may refer to a projecting portion of the data line. However, the projecting portion may even refer to the projecting portion of a scanning line, or switching element, or wiring, or insulating layer, or pixel electrode, or combination of any and all elements.

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While claim 6 recites that a scanning line has a projecting portion, new independent claim 13 provides no guidance as to how 'projecting portion' is to be interpreted or to what 'projecting portion' refers.

As such, the Examiner is unable to interpret new claim 13 and the Examiner is unable to anticipate Applicant's future amendment to new claim 13.

For examination purposes, "projecting portion" will be interpreted to read on all prior art.

As to claims 14 and 15, they are rendered indefinite by virtue of their dependence on claim 13.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-9, 11 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,147,722) in view of Zhang et al. (US 6,115,088).

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

As to claims 1 (amended), 3, 11, and 13-15, Shimada discloses a pair of substrates (Prior Art Figure 28, substrates 120 and 122), a liquid crystal sealed between said pair of substrates (Figure 28 LC 112), a plurality of gate signal lines and source signal lines crossing each other (Figures 16 A&B and 19), a switching element having one end of a current path connected to the corresponding data line and a control end connected to the corresponding scanning line (Figures 16 A&B and 19), a wiring connected to the other end of the current path of the switching element (Figures 16 A&B and Figure 19), an insulating layer being formed on said wiring and having a contact hole through which an end portion of said wiring is exposed (insulating film 136 of Figure 28), a pixel electrode being formed on said insulating layer and electrically connected to the end portion of said wiring through the contact hole (Figure 19, pixel 140); and an alignment film being formed on said pixel electrode and in contact with said liquid crystal (Figure 28, alignment film 150), wherein said contact hole is formed at a position overlapping a region where disclination occurs (Figure 16A and Figure 16B).

Shimada does not appear to explicitly specify wherein said insulating layer is formed of a plurality of laminated insulating films, the insulating films have openings individually which form said contact hole in a tapered shape as a whole.

Zhang teaches and discloses a display device where a laminate film functions as a first interlayer insulating film and a contact hole is created through the first interlayer insulating film made of the laminate films (Column 5, Lines 1-9). The features as taught and disclosed by Zhang

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result in a device in which drop in pixel aperture ratio is prevented and cross-talk is suppressed (Column 6, Lines 6-12).

Zhang is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to form an insulating layer of a plurality of laminating films and such tapered shape contact hole at least to contribute to a display in which a drop in pixel aperture ratio is prevented and cross-talk is suppressed.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Shimada in view of Zhang for manufacturing ease and for multi-layer connections (Column 4, Lines 9-12 and Lines 46-47) and for preventing a drop in aperture ratio and for suppressed cross-talk.

As to claim 4, the wiring is made of a light shielding material and said contact hole and at least a part of the region where disclination occurs are shielded by said wiring (Col. 7, Lines 61-63).

As to claim 5, the scanning lines and the data lines bounds a plurality of pixels each having said contact hole and said contact hole in the pixel is provided at a downstream in a rubbing direction with respect to the switching element of other pixel adjacent to the pixel (Col. 14, Lines 45-57).

As to claims 6-8, said scanning line has a projecting portion overlapping said contact hole and/or said region where disclination occurs and shielding light, a black matrix overlapping data lines and with a wide portion overlapping a region in the pixel between said data line and the projecting portion, and an electrostatic capacitance (Col. 7, Lines 25-51).

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As to claim 9 (amended), Applicant's recited method steps would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made in light of the devices as taught and disclosed by Shimada in view of Zhang.

As to claim 12, the boundary of the first and second regions of on source signal lines is covered with a light-shading film (Column 7, Lines 49-52).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 3-9, and 11-15 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289.

The examiner can normally be reached on M-F.

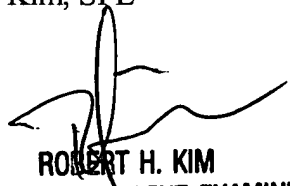
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio

Patent Examiner  
Art Unit 2871

Robert Kim, SPE



**ROBERT H. KIM**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**